Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method of determining a therapy for ~~treating a human with a~~ joint disease ~~involving cartilage~~, which method comprises:

obtaining electronic image data of a ~~said~~ joint~~,~~;

electronically evaluating said image data to obtain information about the three-dimensional geometry of the joint, wherein electronically evaluating includes electronically deriving information on the thickness or shape of at least one of articular cartilage, including normal and/or diseased articular cartilage, and subchondral bone to determine at least a portion of the geometry of an implant ~~determining or extracting three or more surface points on at least one of a cartilage or subchondral bone surface, the surface points being non-coplanar~~; and

wherein at least a portion of said implant has a thickness similar to that of normal articular cartilage adjacent to diseased articular cartilage ~~determining a therapy based on said information~~.

2. – 6. (Cancelled)

7. (Currently Amended) The method of claim 1, wherein said image data is obtained using ultrasound, computed tomography, positron emission tomo~~g~~raphy, a single photon emission computed tomography scan, or MRI.

8. – 9. (Cancelled)

10. (Currently Amended) A method of ~~treating a human with cartilage degeneration in a~~ determining a therapy for joint disease, which method comprises:

obtaining electronic image data of ~~said~~ a joint~~,~~;

electronically evaluating said image data to obtain information about ~~a degeneration~~

~~pattern~~ the three-dimensional geometry of the joint, wherein electronically evaluating includes ~~determining three or more points, the points being non-coplanar~~ electronically deriving information on the thickness of articular cartilage, including normal and/or diseased cartilage; and

~~determining~~ selecting or designing a therapy, wherein said therapy is an implant ~~to treat or replace said degenerated cartilage based on said information;~~.

11. – 14. (Cancelled)

15. (Previously Presented) The method of claim 10, wherein said image data is obtained using ultrasound, computed tomography, positron emission tomography, a single photon emission computed tomography scan, or MRI.

16. – 17. (Cancelled)

18. (Currently Amended) The method of claim ~~16~~10, wherein said implant ~~physical model~~ comprises an area of said diseased articular cartilage as well as adjacent normal tissue.

19. (Currently Amended) The method of claim 18, wherein said adjacent normal tissue is bone, bone marrow, or normal articular cartilage.

20. (Currently Amended) The method of claim ~~16~~10, wherein said implant ~~physical model~~ is created with use of a 3D Euclidian distance transformation.

21. (Currently Amended) The method of claim ~~16~~10, wherein ~~said physical model or~~ at least a portion of said implant ~~physical mode~~ is implanted into a knee joint.

22. (Currently Amended) The method of claim ~~16~~10, wherein said implant ~~physical model~~

carries cartilage cells or cartilage matrix.

23. – 54. (Cancelled)

55. (Currently Amended) The method of claim ~~8~~ 1, wherein the implant ~~physical model~~ comprises an area representing said diseased articular cartilage as well as adjacent normal tissue.

56. (Currently Amended) The method of claim 55, wherein the adjacent normal tissue is at least one of bone, bone marrow, and normal articular cartilage.

57. (Currently Amended) The method of claim ~~8~~ 1, wherein the implant ~~physical model~~ comprises an area representing at least a portion of said diseased articular cartilage.

58. (Currently Amended) The method of claim ~~8~~ 1, wherein the implant ~~physical model~~ comprises an area representing at least a portion of said normal articular cartilage.

59. (Currently Amended) The method of claim ~~8~~ 1, wherein the implant ~~physical model~~ is created with use of a 3D Euclidian distance transform.

60. (Currently Amended) The method of claim ~~8~~ 1, wherein at least a portion of the implant ~~physical model~~ is implanted into a knee joint.

61. (Currently Amended) The method of claim ~~8~~ 1, wherein the implant ~~physical model~~ carries cartilage cells or cartilage matrix.

62. – 65. (Cancelled)

66. (Currently Amended) The method of claim ~~65~~10, wherein said implant~~, cartilage transplant, cartilage graft, implant, cartilage replacement material, scaffold, cartilage regenerating material, or cartilage repair system~~ is also ~~selected and/or designed~~ based on a contact pattern.

67. (Previously Presented) The method of claim 66, wherein said contact pattern is derived from static alignment.

68. (Previously Presented) The method of claim 66, wherein said contact pattern is derived from dynamic loading.

69. (Previously Presented) The method of claim 68, wherein said dynamic loading is estimated for normal gait.

70. (Previously Presented) The method of claim 66, wherein said contact pattern is derived on an image.

71. (Previously Presented) The method of claim 66, wherein said contact pattern is derived in three dimensions.

72. – 84. (Cancelled)

85. (Currently Amended) The method of claim 1~~6~~0, wherein the implant ~~physical model~~ comprises an area representing at least a portion of said diseased articular cartilage.

86. (Currently Amended) The method of claim 1~~6~~0, wherein the implant ~~physical model~~ comprises an area representing at least a portion of said normal articular cartilage.

87. – 93. (Cancelled)

94. (New) The method of claim 1, wherein said derived information only includes information on normal and/or diseased articular cartilage in at least one portion of the joint.

95. (New) The method of claim 1, wherein said derived information includes information on

normal articular cartilage adjacent to diseased articular cartilage in at least one portion of the joint.

96. (New) The method of claim 1, wherein a thickness of a second portion of said implant is substantially the same as a thickness of said normal articular cartilage in at least one portion of the joint.

97. (New) The method of claim 1, wherein a thickness of a second portion of said implant is fixed and the fixed thickness is substantially the same as a thickness of said normal articular cartilage in at least one portion of the joint.

98. (New) The method of claim 1, wherein a thickness of a second portion of said implant is substantially the same as a thickness of said normal articular cartilage adjacent to diseased articular cartilage in at least one portion of the joint.

99. (New) The method of claim 1, wherein said implant is located in at least one of a medial femoral condyle, a lateral femoral condyle, or both femoral condyles.

100. (New) The method of claim 1, wherein said implant is located in at least one femoral condyle and the notch region.

101. (New) The method of claim 1, wherein said implant is located in at least one of a medial tibial plateau, a lateral tibial plateau, or an entire tibial plateau.

102. (New) The method of claim 1, wherein said implant is located in at least one of a medial patella, a lateral patella, an entire patella, or an entire joint.

103. (New) The method of claim 1, wherein said implant includes an isosurface of said subchondral bone.

104. (New) The method of claim 1, wherein said implant is based on polygons.

105. (New) The method of claim 104, wherein said polygons are derived using a tessellation.

106. (New) The method of claim 10, wherein said derived information includes information on normal and/or diseased articular cartilage in at least one portion of the joint.

107. (New) The method of claim 10, wherein said derived information includes information on normal articular cartilage adjacent to diseased articular cartilage in at least one portion of the joint.

108. (New) The method of claim 10, wherein a thickness of a portion of said implant is substantially the same as a thickness of said normal articular cartilage in at least one portion of the joint.

109. (New) The method of claim 10, wherein a thickness of a portion of said implant is fixed and the fixed thickness is substantially the same as a thickness of said normal articular cartilage in at least one portion of the joint.

110. (New) The method of claim 10, wherein a thickness of a portion of said implant is substantially the same as a thickness of said normal articular cartilage adjacent to diseased articular cartilage in at least one portion of the joint.

111. (New) The method of claim 10, wherein said implant is located in at least one of a medial femoral condyle, a lateral femoral condyle, or both femoral condyles.

112. (New) The method of claim 10, wherein said implant is located in at least one femoral condyle and the notch region.

113. (New) The method of claim 10, wherein said implant is located in at least one of a medial

tibial plateau, a lateral tibial plateau, or an entire tibial plateau.

114. (New) The method of claim 10, wherein said implant is located in at least one of a medial patella, a lateral patella, an entire patella, or an entire joint.

115. (New) The method of claim 1, wherein said implant is also based on a contact pattern.

116. (New) The method of claim 115, wherein said contact pattern is derived from static alignment.

117. (New) The method of claim 115, wherein said contact pattern is derived from dynamic loading.

118. (New) The method of claim 117, wherein said dynamic loading is estimated for normal gait.

119. (New) The method of claim 115, wherein said contact pattern is derived on an image.

120. (New) The method of claim 115, wherein said contact pattern is derived in three dimensions.

121. (New) The method of claim 10, wherein said implant comprises an area representing bone or bone marrow.

122. (New) The method of claim 10, wherein said image data undergoes a segmentation.

123. (New) The method of claim 122, wherein said segmentation is used to segment articular cartilage.

124. (New) The method of claim 123, wherein said articular cartilage is normal cartilage.

125. (New) The method of claim 123, wherein said articular cartilage is diseased cartilage.

126. (New) The method of claim 122, wherein said segmentation is used to segment bone.

127. (New) The method of claim 10, wherein said image data are used to derive a three-dimensional model that includes normal and/or diseased articular cartilage.

128. (New) The method of claim 127, wherein said three-dimensional model includes one or more static relationship transformations between femur and tibia.

129. (New) The method of claim 127, wherein said three-dimensional model includes at least one sequence of transformations between femur and tibia..

130. (New) The method of claim 127, wherein said three-dimensional model is merged with one or more load alignment estimations.

131. (New) The method of claim 130, wherein said one or more load alignment estimations include at least one of load alignment in standing or weight-bearing position, load alignment in lying or non-weight-bearing position, and load alignment during joint motion.

132. (New) The method of claim 10, wherein a thickness of said implant is compared to an implantation site.

133. (New) The method of claim 10, wherein a curvature of said implant is compared to an implantation site.

134. (New) The method of claim 10, wherein said electronically deriving information on the thickness of articular cartilage, including normal and/or diseased cartilage, includes evaluating articular cartilage defects.

135. (New) The method of claim 134, wherein said evaluating articular cartilage defects includes evaluating a region of said articular cartilage defect and contiguous parts of said articular cartilage surrounding said region of said articular cartilage defect.

136. (New) The method of claim 134, wherein said evaluating of articular cartilage defects is used to determine one or more dimensions of said implant.

137. (New) The method of claim 1, wherein said implant comprises an area representing bone or bone marrow.

138. (New) The method of claim 1, wherein said image data undergoes a segmentation.

139. (New) The method of claim 138, wherein said segmentation is used to segment articular cartilage.

140. (New) The method of claim 139, wherein said articular cartilage is normal cartilage.

141. (New) The method of claim 139, wherein said articular cartilage is diseased cartilage.

142. (New) The method of claim 138, wherein said segmentation is used to segment bone.

143. (New) The method of claim 1, wherein said image data are used to derive a three-dimensional model that includes normal and/or diseased articular cartilage.

144. (New) The method of claim 143, wherein said three-dimensional model includes one or more static relationship transformations between femur and tibia.

145. (New) The method of claim 143, wherein said three-dimensional model includes at least one sequence of transformations between femur and tibia..

146. (New) The method of claim 143, wherein said three-dimensional model is merged with one or more load alignment estimations.

147. (New) The method of claim 146, wherein said one or more load alignment estimations include at least one of load alignment in standing or weight-bearing position, load alignment in lying or non-weight-bearing position, and load alignment during joint motion.

148. (New) The method of claim 1, wherein said thickness of said implant is compared to an implantation site.

149. (New) The method of claim 1, wherein a curvature of said implant is compared to an implantation site.

150. (New) The method of claim 1, wherein said electronically deriving information on the thickness of articular cartilage, including normal and/or diseased cartilage, and subchondral bone includes evaluating articular cartilage defects.

151. (New) The method of claim 150, wherein said evaluating articular cartilage defects includes evaluating a region of said articular cartilage defect and contiguous parts of said articular cartilage surrounding said region of said articular cartilage defect.

152. (New) The method of claim 150, wherein said evaluating of articular cartilage defects is used to determine one or more dimensions of said implant.

153. (New) A method of determining a therapy for joint disease, which method comprises:

obtaining electronic image data of a joint;

electronically evaluating said image data to obtain information about the three-dimensional geometry of the joint, wherein electronically evaluating includes electronically

deriving information on the shape of articular cartilage, including normal and/or diseased cartilage; and

selecting or designing a therapy, wherein said therapy is an implant.

154. (New) The method of claim 153, wherein said image data is obtained using ultrasound, computed tomography, positron emission tomography, a single photon emission computed tomography scan, or MRI.

155. (New) The method of claim 153, wherein said implant comprises an area of said diseased articular cartilage as well as adjacent normal tissue.

156. (New) The method of claim 155, wherein said adjacent normal tissue is bone, bone marrow, or normal cartilage.

157. (New) The method of claim 153, wherein said implant is created with use of a 3D Euclidian distance transformation.

158. (New) The method of claim 153, wherein at least a portion of said implant is implanted into a knee joint.

159. (New) The method of claim 153, wherein said implant carries cartilage cells or cartilage matrix.

160. (New) The method of claim 153, wherein said implant comprises an area representing at least a portion of said diseased articular cartilage.

161. (New) The method of claim 153, wherein said implant comprises an area representing at least a portion of said normal articular cartilage.

162. (New) The method of claim 153, wherein said derived information only includes information on normal and/or diseased articular cartilage in at least one portion of the joint.

163. (New) The method of claim 153, wherein said derived information includes information on normal articular cartilage adjacent to diseased articular cartilage in at least one portion of the joint.

164. (New) The method of claim 153, wherein said implant is located in at least one of a medial femoral condyle, a lateral femoral condyle, or both femoral condyles.

165. (New) The method of claim 153, wherein said implant is located in at least one femoral condyle and the notch region.

166. (New) The method of claim 153, wherein said implant is located in at least one of a medial tibial plateau, a lateral tibial plateau, or an entire tibial plateau.

167. (New) The method of claim 153, wherein said implant is located in at least one of a medial patella, a lateral patella, an entire patella, or an entire joint.

168. (New) The method of claim 153, wherein said implant is also based on a contact pattern.

169. (New) The method of claim 168, wherein said contact pattern is derived from static alignment.

170. (New) The method of claim 168, wherein said contact pattern is derived from dynamic loading.

171. (New) The method of claim 170, wherein said dynamic loading is estimated for normal gait.

172. (New) The method of claim 168, wherein said contact pattern is derived on an image.

173. (New) The method of claim 168, wherein said contact pattern is derived in three dimensions.

174. (New) The method of claim 153, wherein said implant comprises an area representing bone or bone marrow.

175. (New) The method of claim 153, wherein said image data undergoes a segmentation.

176. (New) The method of claim 175, wherein said segmentation is used to segment articular cartilage.

177. (New) The method of claim 176, wherein said articular cartilage is normal cartilage.

178. (New) The method of claim 176, wherein said articular cartilage is diseased cartilage.

179. (New) The method of claim 175, wherein said segmentation is used to segment bone.

180. (New) The method of claim 153, wherein said image data are used to derive a three-dimensional model that includes normal and/or diseased articular cartilage.

181. (New) The method of claim 180, wherein said three-dimensional model includes one or more static relationship transformations between femur and tibia.

182. (New) The method of claim 180, wherein said three-dimensional model includes at least one sequence of transformations between femur and tibia..

183. (New) The method of claim 180, wherein said three-dimensional model is merged with one or more load alignment estimations.

184. (New) The method of claim 183, wherein said one or more load alignment estimations include at least one of load alignment in standing or weight-bearing position, load alignment in lying or non-weight-bearing position, and load alignment during joint motion.

185. (New) The method of claim 153, wherein a thickness of said implant is compared to an implantation site.

186. (New) The method of claim 153, wherein a curvature of said implant is compared to an implantation site.

187. (New) The method of claim 153, wherein said electronically deriving information on the shape of articular cartilage, including normal and/or diseased cartilage, includes evaluating articular cartilage defects.

188. (New) The method of claim 187, wherein said evaluating articular cartilage defects includes evaluating a region of said articular cartilage defect and contiguous parts of said articular cartilage surrounding said region of said articular cartilage defect.

189. (New) The method of claim 187, wherein said evaluating of articular cartilage defects is used to determine one or more dimensions of said implant.

190. (New) A method of determining a therapy for articular disease, which method comprises:

obtaining electronic image data of a joint;

electronically evaluating said image data to obtain information about the three-dimensional geometry of the joint, wherein electronically evaluating includes electronically deriving information on one or more articular defects, including cartilage; and

selecting or designing a therapy, wherein said therapy is an implant.

191. (New) The method of claim 190, wherein said electronically deriving information on articular defects, including cartilage, includes evaluating normal and/or diseased cartilage.

192. (New) The method of claim 190, wherein said image data is obtained using ultrasound, computed tomography, positron emission tomography, a single photon emission computed tomography scan, or MRI.

193. (New) The method of claim 190, wherein said implant comprises an area of said diseased cartilage as well as adjacent normal tissue.

194. (New) The method of claim 193, wherein said adjacent normal tissue is bone, bone marrow, or normal cartilage.

195. (New) The method of claim 190, wherein said implant is created with use of a 3D Euclidian distance transformation.

196. (New) The method of claim 190, wherein at least a portion of said implant is implanted into a knee joint.

197. (New) The method of claim 190, wherein said implant carries cartilage cells or cartilage matrix.

198. (New) The method of claim 190, wherein said implant comprises an area representing at least a portion of said diseased cartilage.

199. (New) The method of claim 190, wherein said implant comprises an area representing at least a portion of normal cartilage.

200. (New) The method of claim 190, wherein said derived information includes information on normal and/or diseased cartilage in at least one portion of the joint.

201. (New) The method of claim 190, wherein said derived information includes information on normal cartilage adjacent to diseased cartilage in at least one portion of the joint.

202. (New) The method of claim 190, wherein a thickness of a portion of said implant is substantially the same as a thickness of normal cartilage in at least one portion of the joint.

203. (New) The method of claim 190, wherein a thickness of a portion of said implant is fixed and the fixed thickness is substantially the same as a thickness of normal cartilage in at least one portion of the joint.

204. (New) The method of claim 190, wherein a thickness of a portion of said implant is substantially the same as a thickness of normal cartilage adjacent to diseased cartilage in at least one portion of the joint.

205. (New) The method of claim 190, wherein said implant is located in at least one of a medial femoral condyle, a lateral femoral condyle, or both femoral condyles.

206. (New) The method of claim 190, wherein said implant is located in at least one femoral condyle and the notch region.

207. (New) The method of claim 190, wherein said implant is located in at least one of a medial tibial plateau, a lateral tibial plateau, or an entire tibial plateau.

208. (New) The method of claim 190, wherein said implant is located in at least one of a medial patella, a lateral patella, an entire patella, or an entire joint.

209. (New) The method of claim 190, wherein said implant is also based on a contact pattern.

210. (New) The method of claim 209, wherein said contact pattern is derived from static

alignment.

211. (New) The method of claim 209, wherein said contact pattern is derived from dynamic loading.

212. (New) The method of claim 211, wherein said dynamic loading is estimated for normal gait.

213. (New) The method of claim 209, wherein said contact pattern is derived on an image.

214. (New) The method of claim 209, wherein said contact pattern is derived in three dimensions.

215. (New) The method of claim 190, wherein said implant comprises an area representing bone or bone marrow.

216. (New) The method of claim 190, wherein said image data undergoes a segmentation.

217. (New) The method of claim 216, wherein said segmentation is used to segment cartilage.

218. (New) The method of claim 217, wherein said cartilage is normal cartilage.

219. (New) The method of claim 217, wherein said cartilage is diseased cartilage.

220. (New) The method of claim 216, wherein said segmentation is used to segment bone.

221. (New) The method of claim 190, wherein said image data are used to derive a three-dimensional model that includes normal and/or diseased cartilage.

222. (New) The method of claim 221, wherein said three-dimensional model includes one or more static relationship transformations between femur and tibia.

223. (New) The method of claim 221, wherein said three-dimensional model includes at least one sequence of transformations between femur and tibia..

224. (New) The method of claim 221, wherein said three-dimensional model is merged with one or more load alignment estimations.

225. (New) The method of claim 224, wherein said one or more load alignment estimations include at least one of load alignment in standing or weight-bearing position, load alignment in lying or non-weight-bearing position, and load alignment during joint motion.

226. (New) The method of claim 190, wherein a thickness of said implant is compared to an implantation site.

227. (New) The method of claim 190, wherein a curvature of said implant is compared to an implantation site.